

[0025] FIG. 17 depicts a perspective view of another exemplary end effector for use with the instrument of FIG. 1, showing a tissue tacking cartridge;

[0026] FIG. 18 depicts a perspective view of another exemplary end effector for use with the instrument of FIG. 1, showing a tissue tacking cartridge;

[0027] FIG. 19A depicts a cross-sectional end view of the end effector of FIG. 18, with a firing beam retracted;

[0028] FIG. 19B depicts a cross-sectional end view of the end effector of FIG. 18, showing the firing beam advancing through the end effector;

[0029] FIG. 20A depicts a cross-sectional end view of another exemplary end effector for use with the instrument of FIG. 1, showing a tissue tacking cartridge with a firing beam retracted;

[0030] FIG. 20B depicts a cross-sectional end view of the end effector of FIG. 20A, showing the firing beam advancing through the end effector;

[0031] FIG. 21A depicts a partial perspective view of another exemplary tissue tacking cartridge for use with the instrument of FIG. 1, with a firing beam retracted;

[0032] FIG. 21B depicts a partial perspective view of the tissue tacking cartridge of FIG. 21A, showing a firing beam advancing through the cartridge;

[0033] FIG. 22A depicts a partial perspective view of another exemplary end effector for use with the instrument of FIG. 1, positioned over a tissue tack loading cartridge;

[0034] FIG. 22B depicts a partial perspective view of the end effector of FIG. 22A, showing fasteners applied to the end effector;

[0035] FIG. 23A depicts a partial side view of another exemplary end effector for use with the instrument of FIG. 1, positioned over another tissue tack loading cartridge;

[0036] FIG. 23B depicts a partial side view of the end effector of FIG. 23A, showing the fasteners applied to the end effector;

[0037] FIG. 24 depicts a perspective view of another exemplary end effector for use with the instrument of FIG. 1, showing a tissue tacking sleeve;

[0038] FIG. 25 depicts a cross-sectional end view of the end effector and sleeve of FIG. 24;

[0039] FIG. 26 depicts a cross-sectional end view of another exemplary end effector for use with the instrument of FIG. 1, showing a tissue tacking material;

[0040] FIG. 27 depicts a perspective view of the tissue tacking material of FIG. 26 applied to tissue;

[0041] FIG. 28A depicts a perspective view of an exemplary tissue tacking needle;

[0042] FIG. 28B depicts a perspective view of the needle of FIG. 28A loaded with a fastener;

[0043] FIG. 28C depicts a perspective view of the needle of FIG. 28A, showing a wire pushing the fastener; and

[0044] FIG. 28D depicts a perspective view of the needle of FIG. 28A, showing the fastener being applied to tissue.

[0045] The drawings are not intended to be limiting in any way, and it is contemplated that various embodiments of the technology may be carried out in a variety of other ways, including those not necessarily depicted in the drawings. The accompanying drawings incorporated in and forming a part of the specification illustrate several aspects of the present technology, and together with the description serve to explain the principles of the technology; it being understood, however, that this technology is not limited to the precise arrangements shown.

DETAILED DESCRIPTION

[0046] The following description of certain examples of the technology should not be used to limit its scope. Other examples, features, aspects, embodiments, and advantages of the technology will become apparent to those skilled in the art from the following description, which is by way of illustration, one of the best modes contemplated for carrying out the technology. As will be realized, the technology described herein is capable of other different and obvious aspects, all without departing from the technology. Accordingly, the drawings and descriptions should be regarded as illustrative in nature and not restrictive.

[0047] It is further understood that any one or more of the teachings, expressions, embodiments, examples, etc. described herein may be combined with any one or more of the other teachings, expressions, embodiments, examples, etc. that are described herein. The following-described teachings, expressions, embodiments, examples, etc. should therefore not be viewed in isolation relative to each other. Various suitable ways in which the teachings herein may be combined will be readily apparent to those of ordinary skill in the art in view of the teachings herein. Such modifications and variations are intended to be included within the scope of the claims.

[0048] I. Exemplary Electrosurgical Device with Articulation Feature

[0049] FIGS. 1-4 show an exemplary electrosurgical instrument (10) that is constructed and operable in accordance with at least some of the teachings of U.S. Pat. No. 6,500,176; U.S. Pat. No. 7,112,201; U.S. Pat. No. 7,125,409; U.S. Pat. No. 7,169,146; U.S. Pat. No. 7,186,253; U.S. Pat. No. 7,189,233; U.S. Pat. No. 7,220,951; U.S. Pat. No. 7,309,849; U.S. Pat. No. 7,311,709; U.S. Pat. No. 7,354,440; U.S. Pat. No. 7,381,209; U.S. Pub. No. 2011/0087218; U.S. Pub. No. 2012/0116379; U.S. Pub. No. 2012/0078243; U.S. Pub. No. 2012/0078247; U.S. patent application Ser. No. 13/622,729; and/or U.S. patent application Ser. No. 13/622,735. As described therein and as will be described in greater detail below, electrosurgical instrument (10) is operable to cut tissue and seal or weld tissue (e.g., a blood vessel, etc.) substantially simultaneously. In other words, electrosurgical instrument (10) operates similar to an endocutter type of stapler, except that electrosurgical instrument (10) provides tissue welding through application of bipolar RF energy instead of providing lines of staples to join tissue. It should also be understood that electrosurgical instrument (10) may have various structural and functional similarities with the ENSEAL® Tissue Sealing Device by Ethicon Endo-Surgery, Inc., of Cincinnati, Ohio. Furthermore, electrosurgical instrument (10) may have various structural and functional similarities with the devices taught in any of the other references that are cited and incorporated by reference herein. To the extent that there is some degree of overlap between the teachings of the references cited herein, the ENSEAL® Tissue Sealing Device by Ethicon Endo-Surgery, Inc., of Cincinnati, Ohio, and the following teachings relating to electrosurgical instrument (10), there is no intent for any of the description herein to be presumed as admitted prior art. Several teachings below will in fact go beyond the scope of the teachings of the references cited herein and the ENSEAL® Tissue Sealing Device by Ethicon Endo-Surgery, Inc., of Cincinnati, Ohio.

[0050] A. Exemplary Handpiece and Shaft

[0051] Electrosurgical instrument (10) of the present example includes a handpiece (20), a shaft (30) extending